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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,630	02/11/2002	Douglas N. Kimelman	YOR920020023	4522

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09/12/2005

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EXAMINER

MITCHELL, JASON D

ART UNIT

PAPER NUMBER

2193

DATE MAILED: 09/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/073,630

Applicant(s)

KIMELMAN ET AL.

Examiner

Jason Mitchell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. This action is in response to remarks filed on 8/24/05.
2. At Applicant's request claims 1-11 have been amended. Note that claim 7 has been marked as 'original' but has in fact been amended slightly. Claims 1-11 are pending in this case.

### *Response to Arguments*

3. **Applicant's arguments on pg. 5 with respect to the USC 102(e) rejection of claims 1-11 over US 6,360,360 to Bates et al. have been considered but are moot in view of the new ground(s) of rejection.**
4. **Applicant's arguments on pp. 5-7 with respect to the USC 103(a) rejection of claims 1-11 over US 6,324,619 to Raverdy et al. in view of US 5,752,038 to Black et al. have been fully considered but they are not persuasive.**

In the paragraph bridging pp. 6 and 7, Applicant states:

Thus, the cited Blake passage makes no mention of instrumenting of a program component to gather cost-related information during at least a partial run of the program, as required in the independent claims of the patent application at issue. The Applicant describes in detail the cost functionality of the Applicant's invention in the specification, namely on page 15, lines 10-20 (see excerpt above).

Examiner respectfully disagrees. First, the details of the cost functionality disclosed in Applicant's specification are not included as limitation of the claims in question and consequently need not be addressed.

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Further, it is examiner's position that, as indicated in the rejection of claims 1, 5 and 11, col. 2, lines 44-55 of the Blake reference clearly discloses instrumenting a program component ('an instrumented version of the module') to gather cost-related information ('analyzes the execution data to determine the optimal placement order') during at least a partial run of the program ('executes an instrumented version'). An instrumented version of a module has necessarily been instrumented, and execution data that can indicate an optimal placement necessarily relates to the cost of executing the code portions, and executes is synonymous with runs.

Further, in the second paragraph on pg. 7 Applicant states:

Moreover, neither Raverdy nor Blake teaches or suggests selecting, at runtime one of a plurality of explicitly selectable implementation for a subsequent at least partial run of the program wherein the selection is based estimated costs, as the claims at issue require.

Examiner respectfully disagrees. First, applicant's statement amounts to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Further, Raverdy clearly discloses the selection taking place at run time (col. 6, lines 22-27 'when the adaptive method 220 is called')

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**6. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,360,360 to Bates et al. (Bates) in view of US 6,530,075 to Beadle et al. (Beadle).**

The applied reference has a common Assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

**Regarding Claims 1, 5 and 9:** Bates discloses a computer programmed method of minimizing the cost of using a component of a computer program (col. 6, lines 6-9 'Main memory contains optimizing compiler'), a method comprising steps of; providing said component with a plurality of explicit selectable alternative implementations (col. 6, lines 39-41 'multiple class definitions for objects') which share a common component interface and semantics (col. 8, lines 66-67 'class implementations with identical interfaces'), instrumenting the component (col. 8, lines 33-35 'inserting instrumentation code') to gather cost-related information (col. 8, lines 32-35 'profile data may be acquired') during at least a partial run of the program (col. 8, lines 33-35 'as the test code executes'), using the cost-related information to estimate a cost for using each of a plurality of said explicitly selectable implementations in running the program (col. 8, lines 49-50 'compute a weighted cost for each class'), based on the estimated costs,

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selecting one of the plurality of explicitly selectable implementations for a subsequent at least partial run of the program (col. 6, lines 36-39 'automatically select among different implementations of objects').

Bates does not explicitly disclose that the selection is made at run time but discloses his invention relates to object oriented programs (Abstract 'An object oriented ... computer system') and that his invention can be used with any compiler (col. 6, lines 46-48 'Those skilled in the art will appreciate that the present invention applies equally to any compiler').

Beadle teaches a Just In Time Compiler (col. 4, lines 50-52 'Just in Time (JIT) compiler') in an analogous art for the purpose of providing compiler-based optimizations (col. 4, lines 46-50 'optimize ... compiling of code').

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply Bates invention to a JIT compiler (Bates col. 6, lines 46-48 'Those skilled in the art will appreciate that the present invention applies equally to any compiler')

**Regarding Claims 2, 6 and 10:** The rejections of claims 1, 5 and 9 are incorporated, respectively; further Bates discloses a default implementation is used during said at least partial run (col. 8, lines 11-15 'dynamic profiling data may be obtained by executing test code').

**Regarding Claim 3:** The rejection of claim 1 is incorporated; further Bates discloses the selecting step is carried out by another component operable as a controller (col. 6, lines 36-38 'a mechanism ... select among different implementations of objects').

**Regarding Claim 4:** The rejection of claim 1 is incorporated; further Bates discloses the selecting step is carried out by an application program (col. 6, lines 36-38 'allows the compiler to automatically select among different implementations of objects').

**Regarding Claim 11:** The rejection of claim 9 is incorporated; further Bates discloses said selector being operable to choose an alternative implementation based upon a cost measurement by said instrumentation (col. 6, lines 36-38 'a mechanism ... to automatically select ... implementations of objects').

**7. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,324,619 to Raverdy et al. (Raverdy) in view of US 5,752,038 to Blake et al. (Blake).**

**Regarding Claims 1, 5 and 9:** Raverdy discloses a computer programmed method of minimizing the cost of using a component of a computer program (col. 4, lines 48-49 'steps executed on a computer system'), said method comprising the steps of; providing said component with a plurality of explicit selectable alternative implementations (col. 6, lines 14-15 'the adaptive method includes three implementations') which share a common component interface and semantics (col. 6, lines 19-21 'access to implementations are controlled by a switching software wrapper'); and selecting, at runtime, one of said plurality of explicitly selectable implementations for a subsequent at least partial run of said program (col. 6, lines 19-27 'asks the selector ... and executes the selected one of the implementations').

Raverdy does not disclose instrumenting said component or estimating costs for using each of said explicitly selectable implementations, but does disclose an 'Adaptation

Manager' which determines which implementation should be used (col. 6, lines 35-36 'an adaptation manager for managing such adaptive methods during run-time') based on designer supplied 'adaptation policies' (col. 11, lines 8-11 'adaptation policies are implemented by library designers').

Blake teaches instrumenting said component (col. 2, lines 45-47 'an instrumented version of the module') to gather cost-related information (col. 2, lines 45-47 'to collect execution data') during at least a partial run of said program (col. 2, lines 45-47 'executes an instrumented version of the module') and a cost estimator for determining the cost of the application (col. 7, lines 47-49 'the optimizer program analyzes the execution data') in an analogous art for the purpose of optimizing the execution of the code (col. 2, lines 47-48 'to determine the optimal placement order for each code portion').

It would have been obvious to a person of ordinary skill in the art at the time of the invention to use Blake's instrumenting and analysis techniques (col. 2, lines 45-50) in combination with Raverdy's 'adaptation policies' (col. 11, lines 8-11) to cause the 'Adaptation Manager' (col. 6, lines 35-36) disclosed in Raverdy to select the implementations having lower estimated costs, because one of ordinary skill in the art would have been motivated to optimize the execution of the computer program (col. 2, lines 34-36 'the module will require less memory to execute').

**Regarding Claims 2, 6 and 10:** The rejections of claims 1, 5 and 9 are incorporated, respectively; further Raverdy discloses a default implementation is used during said at



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least partial run (col. 19, lines 64-65 'selects a first one of said plurality of first implementations by default').

**Regarding Claim 3:** The rejection of claim 1 is incorporated; further Raverdy discloses the selecting step is carried out by another component operable as a controller (col. 6, lines 22-27 'asks the selector which implementation it should execute').

**Regarding Claim 4:** The rejection of claim 1 is incorporated; further Raverdy discloses the selecting step is carried out by an application program (col. 6, lines 35-36 'an adaptation manager for managing such adaptive methods during run-time').

**Regarding Claim 11:** The rejection of claim 9 is incorporated; further Raverdy does not disclose said selector choosing an alternative implementation based upon said instrumentation, but does disclose an 'Adaptation Manager' which determines which implementation should be used (col. 6, lines 35-36 'an adaptation manager for managing such adaptive methods during run-time') based on designer supplied 'adaptation policies' (col. 11, lines 8-11 'adaptation policies are implemented by library designers').

Blake teaches said selector being operable to choose an alternative implementation based upon a cost measurement by said instrumentation (col. 7, lines 47-49 'the optimizer program ... determine an optimal placement order for each code portion') in an analogous art for the purpose of optimizing the execution of the code (col. 2, lines 47-48 'to determine the optimal placement').

It would have been obvious to a person of ordinary skill in the art at the time of the invention to use Blake's 'Optimizer Program' (col. 7, lines 47-49) in combination with

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Raverdy's 'adaptation policies' (col. 11, lines 8-11) to cause the 'Adaptation Manager' (col. 6, lines 35-36) disclosed in Raverdy to select the implementations having lower estimated costs, because one of ordinary skill in the art would have been motivated to optimize the execution of the computer program (col. 2, lines 34-36 'the module will require less memory to execute').

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Mitchell whose telephone number is (571) 272-3728. The examiner can normally be reached on Monday-Thursday and alternate Fridays 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (571) 272-3719. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jason Mitchell  
9/2/05

  
ANIL KHATRI  
PRIMARY EXAMINER